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Steve Knizner, Acting Director
Toxics Release Inventory Program
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
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Washington, D.C. 20460

Via electronic mail (Knizner.Steve@epa.gov)

Re: Submission of EPA White Papers on Methane and Volatile Organic Compound
Emissions to Docket ID No. EPA-HQ-TRI-2013-0281

Dear Director Knizner:

On October 24, 2012, the Environmental Integrity Project (EIP) filed a petition (Petition) requesting that the Environmental Protection Agency (EPA) add the oil and gas extraction industry to the list of industry sectors whose facilities are required to report to the Toxics Release Inventory (TRI). We now submit for inclusion in EPA's regulatory docket for the Petition, Docket ID No. EPA-HQ-TRI-2013-0281, five technical white papers that EPA has drafted concerning emissions from the oil and natural gas industry.¹

EPA has set out three primary factors for consideration in determining whether to add an industry to the TRI:

- (1) Whether TRI-listed chemicals are reasonably anticipated to be present at facilities in the candidate industry group (the "chemical" factor);
- (2) Whether facilities manufacture, process, or otherwise use these chemicals (the "activity" factor); and
- (3) Whether facilities can reasonably be anticipated to increase the information made available pursuant to the TRI or otherwise further its purposes (the "information" factor).²

By demonstrating the variety and magnitude of emissions from different sources and processes in the oil and gas extraction industry, the white papers add weight to the chemical and activity factors.

Although the white papers only discuss methane and volatile organic compound emissions (VOC), one can readily use the appropriate gas composition ratios that EPA set out in its Oil and Natural Gas Sector New Source Performance Standards and National Emission

Standards for Hazardous Air Pollutants rulemaking to estimate the amount of hazardous air pollutant (HAP) emissions.³

For example, in the *Oil and Natural Gas Sector Compressors* white paper, EPA uses various methods to estimate the average methane emissions for compressors involved in production and processing in the oil and gas extraction industry.⁴ Using EPA's HAP:Methane gas composition ratio for production and processing of 0.0105, we were able to calculate the HAP emissions of the average reciprocating compressor involved in natural gas production, the average reciprocating compressor involved in natural gas processing, and the average centrifugal compressor involved in natural gas processing.⁵

Type of Compressor	Average Methane EF (Mscf/yr)	Average Methane Emissions (lbs/yr)	Average HAP Emissions (lbs/yr)
<i>Natural Gas Production</i>			
Reciprocating	9.48	358,092	3,760
<i>Natural Gas Processing</i>			
Reciprocating	1,125	42,497,067	446,219
Centrifugal	342	12,920,110	135,661

From these calculations, one can see that compressors involved in natural gas processing release hundreds of thousands of pounds of HAPs per year on average, making it very likely that such compressors use or release at least one TRI-listed chemical above the reporting threshold. Though not every HAP is a TRI-listed chemical, there is a great deal of overlap. In fact, to hone in specifically on TRI-listed chemicals, one can use EPA's BTEX:Methane ratio (i.e., benzene, toluene, ethylbenzene, and xylenes) of 0.00280 to see that compressors release vast amounts of even this small subset of toxic chemicals.⁶

Type of Compressor	Average Methane EF (Mscf/yr)	Average Methane Emissions (lbs/yr)	Average BTEX Emissions (lbs/yr)
<i>Natural Gas Production</i>			
Reciprocating	9.48	358,092	1,003
<i>Natural Gas Processing</i>			
Reciprocating	1,125	42,497,067	118,992
Centrifugal	342	12,920,110	36,176

In short, these white papers further demonstrate that the oil and gas extraction sector releases a great deal of toxic chemicals to the air throughout its various processes, making it an excellent candidate for addition to the TRI.

Thank you for considering this submission. Please do not hesitate to contact me at (202) 263-4451 or akron@environmentalintegrity.org if we can provide any additional information.

Sincerely,



Adam Kron

¹ See EPA, White Papers on Methane and VOC Emissions, <http://www.epa.gov/airquality/oilandgas/whitepapers.html> (last visited May 12, 2014); EPA Office of Air Quality Planning and Standards, *Oil and Natural Gas Sector Compressors* (April 2014), <http://www.epa.gov/airquality/oilandgas/pdfs/20140415compressors.pdf>; EPA Office of Air Quality Planning and Standards, *Oil and Natural Gas Sector Leaks* (April 2014), <http://www.epa.gov/airquality/oilandgas/pdfs/20140415leaks.pdf>; EPA Office of Air Quality Planning and Standards, *Oil and Natural Gas Sector Hydraulically Fractured Oil Well Completions and Associated Gas during Ongoing Production* (April 2014), <http://www.epa.gov/airquality/oilandgas/pdfs/20140415completions.pdf>; EPA Office of Air Quality Planning and Standards, *Oil and Natural Gas Sector Liquids Unloading Processes* (April 2014), <http://www.epa.gov/airquality/oilandgas/pdfs/20140415liquids.pdf>; EPA Office of Air Quality Planning and Standards, *Oil and Natural Gas Sector Pneumatic Devices* (April 2014), <http://www.epa.gov/airquality/oilandgas/pdfs/20140415pneumatic.pdf>.

² See Addition of Facilities in Certain Industry Sectors; Revised Interpretation of Otherwise Use; Toxic Chemical Release Reporting; Community Right-to- Know, 62 Fed. Reg. 23,834, 23,836 (May 1, 1997).

³ See Memorandum from Heather P. Brown, P.E., EC/R Incorporated, to Bruce Moore, EPA, *Re: Composition of Natural Gas for use in the Oil and Natural Gas Sector Rulemaking* 10 Tbl. 6, 12 Tbl. 9 (July 28, 2011) [hereafter *Gas Composition Memo*].

⁴ See *Oil and Natural Gas Sector Compressors*, *supra*, at 11 Tbl. 3-2, 12 Tbl. 3-3.

⁵ *Id.*; *Gas Composition Memo* at 10 Tbl. 6. Due to a lack of data, EPA was unable to determine the average emissions of centrifugal compressors involved in natural gas production. *Oil and Natural Gas Sector Compressors* at 9.

⁶ *Oil and Natural Gas Sector Compressors* 11 Tbl. 3-2, 12 Tbl. 3-3; *Gas Composition Memo* at 10 Tbl. 6.